What is claimed is:

1. A probe for measuring the surface temperature of a pipe, the probe comprising:

an active clamp assembly extending from a first end to a second end and including

a first end portion forming a lower handle,

a second end portion forming an upper jaw,

a clamp temperature sensor assembly carried in the upper jaw, and

an electronics module carried in the lower handle, the electronics module being in communication with the clamp temperature sensor assembly and having a display panel;

a passive clamp assembly extending from a first end to a second end, the first end of the passive clamp assembly being pivotally mounted to the first end of the active clamp assembly, and including

a first end portion forming an upper handle, and

a second end portion forming a lower jaw; and

a spring biasing the upper handle away from lower handle;

wherein the surface temperature of the pipe is sensed by squeezing the upper and lower handles together opening a gap between the upper and lower jaws, inserting the pipe into the gap, and releasing the upper and lower handles whereby the spring urges the upper jaw toward the lower jaw to clamp the pipe therebetween and the clamp temperature sensor senses the surface temperature of the pipe.

2. The probe of claim 1 wherein the clamp temperature sensor assembly comprises:

a sensor subassembly and

a resilient underlayment composed of thermally insulating material and having oppositely disposed first and second surfaces, the first surface being mounted to the upper jaw of the active clamp assembly and the second surface being mounted to the sensor subassembly.

3. The probe of claim 2 wherein the upper jaw has a clamping surface adapted for engaging the surface of the pipe, the clamping surface defining a recess, the clamp temperature assembly being mounted within the recess with the sensor subassembly extending a predetermined distance from the clamping surface of the upper jaw.

4. The probe of claim 2 wherein the sensor subassembly includes a temperature sensor mounted between inner and outer heat transfer elements, each of the heat transfer elements being composed of a thin foil of highly conductive metal.

5. The probe of claim 4 wherein the temperature sensor is a thermistor, the outer heat transfer element is composed of copper or aluminum, and the inner heat transfer element is composed of aluminum.

6. The probe of claim 4 wherein the clamp temperature sensor assembly also comprises a signal-carrying conductor for carrying a temperature signal from the temperature sensor to the electronics module.

7. The probe of claim 6 wherein the electronics module also has a central processing unit and the display panel has an LCD display, the central processing unit converting the temperature signal from the temperature sensor to an output signal representative of the sensed temperature and transmitting the output signal to the LCD display.

8. The probe of claim 7 wherein the display panel also has at least one control buttons for operating the electronics module.

9. The probe of claim 1 wherein the active clamp assembly further includes a battery mounted within the lower handle, the battery being in electrical communication with the electronics module.

10. The probe of claim 1 wherein the active clamp assembly further includes a spike temperature probe assembly comprising:

a spike temperature probe having

a tube with a pointed distal end portion and a proximal end portion and

a temperature sensor mounted within the distal end portion of the tube and

a signal-carrying conductor for carrying a temperature signal from the temperature sensor to the electronics module.

11. The probe of claim 10 wherein the electronics module also has a switch for connecting the spike temperature probe and disconnecting the clamp temperature sensor when the spike temperature probe is in service

and connecting the clamp temperature sensor and disconnecting the spike temperature probe when the spike temperature probe is out of service.

12. The probe of claim 10 wherein the temperature sensor is a thermistor mounted within the tube by potting.

13. The probe of claim 10 wherein the spike temperature probe assembly further comprises a rotary hinge having:

an axial post rotatably mounted to the lower handle;

a coaxial rim;

a web extending radially from the post receptacle to the rim; and

a tubular-shaped sensor receptacle extending tangentially from the rim, the proximal end portion of the tube being mounted within the sensor receptacle.

14. The probe of claim 13 wherein the signal-carrying conductor is composed of an electrically conductive material having high flex strength.

15. The probe of claim 13 wherein lower handle defines a recess and the spike temperature probe assembly further comprises a latch for holding the spike temperature probe within the recess of the lower handle when the spike temperature probe is not in use or at an operating position when the spike temperature probe is in use.

16. The probe of claim 15 wherein the latch comprises:

first and second circumferentially spaced detents in the rim of the rotary hinge;

a ball; and

a spring, the spring biasing the ball into the first detent when the spike temperature probe is positioned within the recess of the lower handle and biasing the ball into the second detent when the spike temperature probe is positioned at the operating position.

17. The probe of claim 15 wherein the electronics module also has a reed switch, the rim of the rotary hinge engaging the reed switch when the spike temperature probe is in the operating position, the reed switch electrically connecting the signal-carrying conductor of the spike temperature probe and electrically disconnecting the signal-carrying conductor of the clamp temperature sensor when engaged by the rim of the rotary hinge and electrically connecting the signal-carrying conductor of the clamp temperature sensor and electrically disconnecting the signal-carrying conductor of the spike temperature probe when not engaged by the rim of the rotary hinge.

18. A probe for measuring the surface temperature of a pipe, the probe comprising:

an active clamp assembly extending from a first end to a second end and including

a first end portion forming a lower handle,

a second end portion forming an upper jaw,

a clamp temperature sensor carried in the upper jaw,

a spike temperature probe carried on the lower handle, the spike temperature probe being rotatable between an in-service position and a stowed position, and

an electronics module carried in the lower handle, the electronics module having a switch for connecting the spike temperature probe and disconnecting the clamp temperature sensor when the spike temperature probe is in the in-service position and connecting the clamp temperature sensor and disconnecting the spike temperature probe when the spike temperature probe is not in the in-service position;

a passive clamp assembly extending from a first end to a second end, the first end of the passive clamp assembly being pivotally mounted to the first end of the active clamp assembly, and including

a first end portion forming an upper handle and

a second end portion forming a lower jaw; and

a spring biasing the upper handle away from lower handle.

19. A probe for measuring the surface temperature of a pipe, the probe comprising:

an active clamp assembly extending from a first end to a second end and including

a first end portion forming a lower handle,

a second end portion forming an upper jaw,

a clamp temperature sensor assembly having

a sensor subassembly and

a resilient underlayment composed of thermally insulating material and having oppositely disposed first and second surfaces, the first surface being mounted to the upper jaw of the active clamp assembly and the second surface being mounted to the sensor subassembly,

a spike temperature probe assembly having

a rotary hinge rotatably mounted within the lower handle and

a spike temperature probe having a pointed distal end portion and a proximal end portion mounted to the rotary hinge, the spike temperature probe being rotatable between an in-service position and a stowed position, and

an electronics module carried in the lower handle, the electronics module having a switch for connecting the spike temperature probe and disconnecting the clamp temperature sensor subassembly when the spike temperature probe is in the in-service position and connecting the clamp temperature sensor subassembly and disconnecting the spike temperature probe when the spike temperature probe is not in the in-service position;

a passive clamp assembly extending from a first end to a second end, the first end of the passive clamp assembly being pivotally mounted to the first end of the active clamp assembly, and including

a first end portion forming an upper handle and

a second end portion forming a lower jaw; and

a spring biasing the upper handle away from lower handle.